REMARKS

Claims 1-31 (re-numbered by the Examiner) are presented above. No claim has been further amended by Applicants.

a) Claim Rejections Based on 35 U.S.C. § 112

The rejection of Claims 31-51 under 35 U.S.C. § 112, second paragraph as being indefinite is respectfully traversed. Independendent Claims 31 and 34 recite the phrase "wherein the linear low density polyethylene causes the strapping to have increased resistance to splitting in the longitudinal direction while under tension." Independent Claims 32 and 33 recite a similar phrase except that the term "linear low density polyethylene" is replaced with "polyolefin" and limits the polyolefin to specific polyethylenes. The Examiner objected to this phrase for two reasons. First, the Examiner stated it is unclear how the linear low density polyethylene causes the strapping to have increased resistance to splitting in the longitudinal direction. Second, the Examiner stated it is under how much tension is required in the claim.

Responding to the first point, Applicants agree that it is unclear how the linear low density polyethylene or other polyethylene causes the strapping to have increased resistance to splitting in the longitudinal direction. To the contrary, this result is surprising and unexpected given that the polymers (linear low density polyethylene and polyester) are incompatible with each other. However, this factor is more a basis for finding nonobviousness than for finding indefiniteness.

For purposes of 35 U.S.C. § 112, both the claims and the specification teach the composition that yields the claimed result. If a person skilled in the art prepares the molecularly oriented strapping having the claimed dimensions and the claimed composition, the claimed result can be achieved. 35 U.S.C. § 112 only requires an adequate teaching of *how* to achieve a claimed result. The statute does not require knowledge or teaching of *why* the claimed result is achieved (i.e. how the ingredients of the composition

work together to achieve the claimed result). In the present invention, the claimed result can be achieved by preparing molecularly oriented strapping according to the limitations in Applicants' claims (*See* p. 2 lines 9-13, p. 4 lines 14-16 of the specification).

In reality, there are only two grounds for rejecting a claim under 35 U.S.C. § 112. The first is that the language used is not precise and definite enough to provide a clear-cut indication of the scope of subject matter embraced by the claim. The second is that the language is so broad that it causes the claim to have a scope of protection beyond what is justified by the specification disclosure. *In Re Swinehart*, 169 USPQ 226, 229 (CCPA, 1971).

In the present case, the overall claim language provides a clear and definite description of the invention. The functional language is not the only claim limitation. The claims are also limited by precise dimensions and precise compositions. These limitations, taken together with the functional language, clearly describe the invention.

Moreover, the claims are fully supported by the specification, and are not broader than the scope of the invention described in the specification. Accordingly, the functional language does not provide basis for rejecting these claims under 35 U.S.C. § 112.

Responding to the Examiner's second point, no specific amount of tension is required by the claims. It is apparent from the specification that the tension to be applied to the polyester strapping reflects normal use conditions for polyester strapping having the claimed dimensions. Examples of normal uses include securing the packaging of heavy boxes, pallets loaded with bricks and other heavy objects, large textile bales, and other packaging applications which require high strength reinforcement (*See* p. 1, lines 5-8 of the specification).

It would be apparent to persons skilled in the art that the amount of tension experienced by the polyester strapping varies according to the

normal uses. Applicants' claims recite that the linear low density polyethylene or other polyethylene causes the strapping to have increased resistance to splitting in the longitudinal direction while under tension. This means that the molecularly oriented strapping of the invention will withstand a higher degree of tension than an otherwise similar polyester strapping without the linear low density polyethylene or other polyethylene, before the strapping splits in the longitudinal direction. The problem with the prior art polyester strapping was splitting in the longitudinal direction during normal use tensions. The strapping of the invention alleviates that problem.

Finally, the Examiner objected to the phrase "main polymer chain that is essentially linear" in Claim 31, as being indefinite. Yet the meaning of "essentially linear" is defined both in Claim 31 and in the specification. Claim 31 states that the polymer has not more than 5 long chain branches per 1000 ethylene units. This is consistent with the definition provided in the specification at page 3, lines 12-14. The term "essentially linear" limits the number of long chain branches to the claimed low number.

For these reasons, Claims 31-51 are clear and definite. The rejection under 35 U.S.C. § 112, second paragraph should be withdrawn.

b) Claim Rejections Under 35 U.S.C. § 103(a) – Perez et al.

The rejection of Claims 31, 33-35, 37-39, 44-45, 47 and 49-51 under 35 U.S.C. § 103(a) as obvious over U.S. Patent 6,331,343 ("Perez et al.") is respectfully traversed. This rejection does not meet the legal standards of 35 U.S.C. § 103(a).

If a person of ordinary skill in the art can implement a predictable variation, 35 U.S.C. § 103(a) likely bars its patentability. If a technique has been used to improve one device, and if a person of ordinary skill in the art would recognize that it would improve similar devices in the *same way*, use of the technique is obvious unless its application is beyond his or her skill. In summary, whether an improvement is obvious hinges on whether or not the

improvement is *more than the predictable use of prior art elements according to their established functions. KSR International Co. v. Teleflex Inc. et al.,* 82 U.S.P.Q. 2d 1385; 127 S.Ct. 1727, 1740 (2007).

Perez et al. discloses oriented films comprising an immiscible mixture of a crystalline polymer component and a void-initiating component (Col. 2 lines 1-5). The immiscible mixture can be a blend of a first semi-crystalline polymer and a second void-initiating polymer, present in a weight ratio of 99:1 to 1:99 (Col. 4 lines 46-55). However, the ratio of first and second polymers must be further selected so that one of the two polymers serves as a void-initiating polymer (Col. 4 line 59 – Col. 5 line 6). In other words, it is required that the second void-initiating polymer be immiscible with the first semi-crystalline polymer in the amount used (Col. 5 lines 15-21). If the amount of the second polymer is too low, then it may not be immiscible with the first polymer and may not serve its required function of initiating voids.

While Perez et al. gives a laundry list of possible first and second polymers, the reference does not disclose (for every polymer combination) how much of the second polymer is needed to perform the required function of initiating voids (Col. 4 lines 4-45). Perez et al. makes no representation that the general weight ratio of 99:1 to 1:99 applies specifically to all of the disclosed polymer combinations. Persons of ordinary skill in the art would know that certain polymer combinations would require a greater amount of the second polymer in order for the second polymer to serve the required void-initiating function, and certain other polymer combinations would require less of the second polymer. Indeed, Perez et al. discloses that the immiscibility of two polymers is dependent on an equation that takes into account both the molar volume of the second polymer and the solubility parameters of both polymers (Col. 4 lines 10-27).

However, Perez et al. clearly requires the second polymer to be at a high enough level to form voids during stretching of a film formed from the polymer blend. The purpose of the voids is to facilitate fibrillation of the film during subsequent processing (Col. 6 lines 37-45). Fibrillation is tantamount to longitudinal splitting except that the degree of splitting from fibrillation is orders of magnitude greater. In fact, the longitudinal splitting is carried out to such a degree that the film is divided into microfibers having an average diameter of less than 20 microns, generally 0.1-10 microns (Col. 2 lines 10-15). In other words, what starts out as a film is essentially annihilated by longitudinal splitting into numerous fine microfibers. The formation of microfibers is caused by uniaxially orienting the film (Col. 2 lines 10-15).

Moreover, Perez prefers to use *polypropylene* as a void-initiating polymer for a polyester matrix (Col. 4 lines 38-45). Perez et al. *does not disclose a polyethylene and polyester* combination as required by Applicants' claims.

Applicants' claimed invention plainly does not use linear low density polyethylene or another polyethylene in an amount sufficient to facilitate microfiber formation as required by Perez et al. Instead, the linear low density polyethylene or other polyethylene is combined with the polyester in a very small amount which reduces or eliminates longitudinal splitting, i.e., which renders the polyester strapping more resistant to longitudinal splitting while under tension during normal uses. This result is *directly contrary* to the result required by Perez et al., and is surprising and unexpected based on the Perez et al. teaching. Perez et al. does not meet the standards required by *KSR International Co.* for showing obviousness, namely the predictable use of prior art elements according to their established functions. Instead, Applicants' invention combines linear low density polyethylene or another polyethylene with polyester in amounts that yield an *unpredictable* result, namely *increased resistance* to longitudinal splitting.

Additionally, it would not have been obvious from Perez et al. to produce a molecularly oriented strapping having the claimed composition along with a width of 0.5-3 cm and a thickness of 0.03-0.20 cm. Instead, the uniaxial orientation described in Perez et al. yields microfibers having an average diameter less than 20 microns (Col. 2 lines 10-15). For these reasons, Claims 31, 33-35, 37-39, 44-45, 47 and 49-51 are not obvious from Perez et al. and the rejection under 35 U.S.C. § 103(a) should be withdrawn.

c) Claim Rejections Under 35 U.S.C. § 103(a) – Perez et al. In View of Nishimura et al.

The rejection of Claims 31-51 under 35 U.S.C. § 103(a) based on Perez et al. in view of U.S. Patent 5,607,183 ("Nishimura et al.") is respectfully traversed. For the reasons explained above, Perez et al. does not disclose or suggest (and indeed does not *permit*) the use of linear low density polyethylene or another polyethylene in an amount which causes polyester strapping to have *increased* resistance to longitudinal splitting while under tension. Perez et al. also does not suggest molecularly oriented polyester strapping which ultimately (after uniaxial stretching) has a width of 0.5-3 cm and a thickness of 0.3-0.20 cm. Instead, Perez et al. requires that the polymer components and amounts be selected so that, upon stretching, the film is annihilated (via longitudinal splitting) into microfibers having a diameter less than 20 microns (Col. 2 lines 10-15).

Nishimura et al. is cited as disclosing reinforcing belts that comprise polyesters such as polybutylene terephthalate, polyethylene naphthalate or polyethylene isophthalate. However, Nishimura et al. does not overcome the deficiencies in the Perez et al. disclosure. The disclosed polyesters are not mixed with a polyolefin additive (Col. 14 lines 17-49). Also, the disclosed belts are formed of woven fabrics which, in turn, are formed from small fibers instead of straps having the claimed dimensions (Col. 3 lines 29-37), Col. 4 lines 33-41, Col. 13 lines 45-57). The combination of Perez et al.

and Nishimura et al. does not disclose or suggest Applicants' claimed invention. Claims 31-51 are not obvious from this combination of references, and this rejection under 35 U.S.C. § 103(a) should be withdrawn.

d) Claim Rejection Under 35 U.S.C. § 103(a) – Perez et al. In View of Steinkamp et al.

The rejection of Claims 43 and 46 under 35 U.S.C. § 103(a) as obvious over Perez et al. in view of U.S. Patent 3,862,265 ("Steinkamp et al.") is respectfully traversed. Steinkamp et al. is cited as teaching a strapping article comprising polyolefins grafted with polar monomers. However, Steinkamp et al. does not overcome the deficiencies in the disclosure of Perez et al. The disclosed grafted polyolefins are not combined with polyester as required by Applicants' claims to form molecularly oriented strapping having the dimensions required by Applicants' claims.

The combination of Perez et al. and Steinkamp et al. do not disclose or suggest Applicants' claimed invention. Claims 43 and 46 are not obvious from this combination of references, and this rejection under 35 U.S.C. § 103(a) should be withdrawn.

e) Reply To Examiner's Response To Arguments

The Examiner argues that Perez et al. teaches a high strength material that can be used as strapping materials having crack propogation prevention (Col. 2 lines 30-36). In fact, Perez et al. teaches high strength strapping materials and the prevention of crack propogation in concrete materials as separate uses of the microfibers. Perez et al. does not teach prevention of crack propogation in strapping.

Applicants agree that strapping may be formed of a large bundle of microfibers as disclosed in Perez et al., and such strapping may have high longitudinal strength. This does not change the fact that the microfibers in Perez et al. are formed by massive longitudinal splitting of a film. Applicants'

invention endeavors to reduce or eliminate longitudinal splitting of polyester strapping, instead of promoting such splitting.

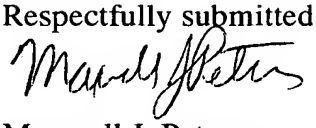
The Examiner argues that Perez et al. teaches mixing similar polyester and similar polyolefins at similar concentrations to those claimed, and would be expected to cause similar resistance to longitudinal splitting. To the contrary, Perez et al. teaches the selection of polymers and polymer concentrations to facilitate massive longitudinal splitting of a film into a large number of microfibers. While Perez et al. surmises that the effective ratios of first and second polymers are between 99:1 and 1:99, Perez et al. does not state that ratios near an endpoint of the range (e.g. 99:1) will cause fibrillation in any particular polymer combination (e.g. polyester and a specific polyolefin). Instead, Perez et al. teaches that the ratio of specific polymers must be selected to achieve the desired fibrillation upon orientation of the film (Col. 4 lines 4-42). Moreover, Perez et al. prefers polypropylene as the void-initiating polymer mixed with polyester (Col. 4 lines 32-45). Perez et al. does not disclose a polyethylene/polyester combination as required by Applicants' claims.

Finally, the Examiner improperly accuses Applicants of attacking the references individually instead of in combination. Applicants have fully explained why the combined references do not disclose or suggest the limitations of the rejected claims.

f) Conclusion

Applicants believe that the claims are in condition for allowance. Applicants respectfully request reconsideration and withdrawal of the claim rejections under 35 U.S.C. §§ 112 and 103(a).

Respectfully submitted,



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